

National Aeronautics and Space Administration



# NASA's Space Launch System: An Enabling Capability for Discovery

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Space Launch System (SLS) Program

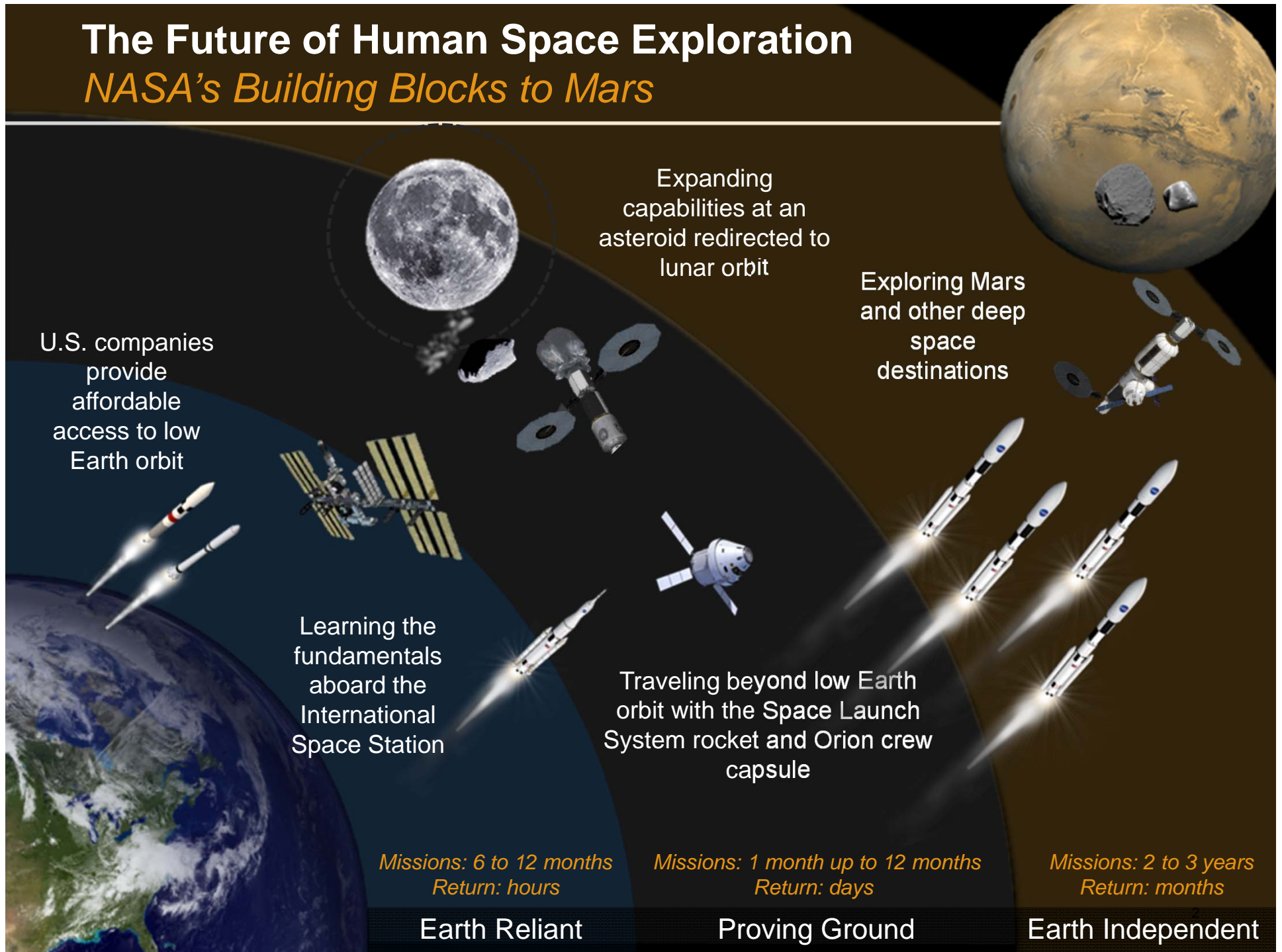
*May 2014*

Space Launch System



# The Future of Human Space Exploration

## *NASA's Building Blocks to Mars*



# Global Exploration Roadmap 2.0



2013

2020

2030



## International Space Station

General Research and Exploration  
Preparatory Activities

Note: ISS partner agencies have agreed to use the ISS until at least 2020.

Commercial or Government Low-Earth Orbit Platforms and Missions

## Robotic Missions to Discover and Prepare



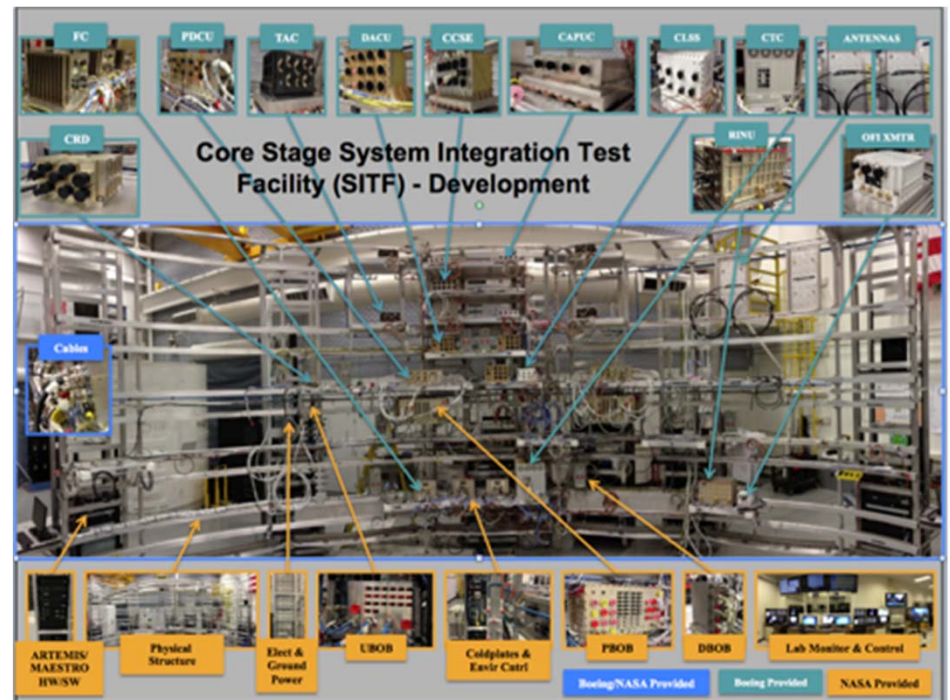
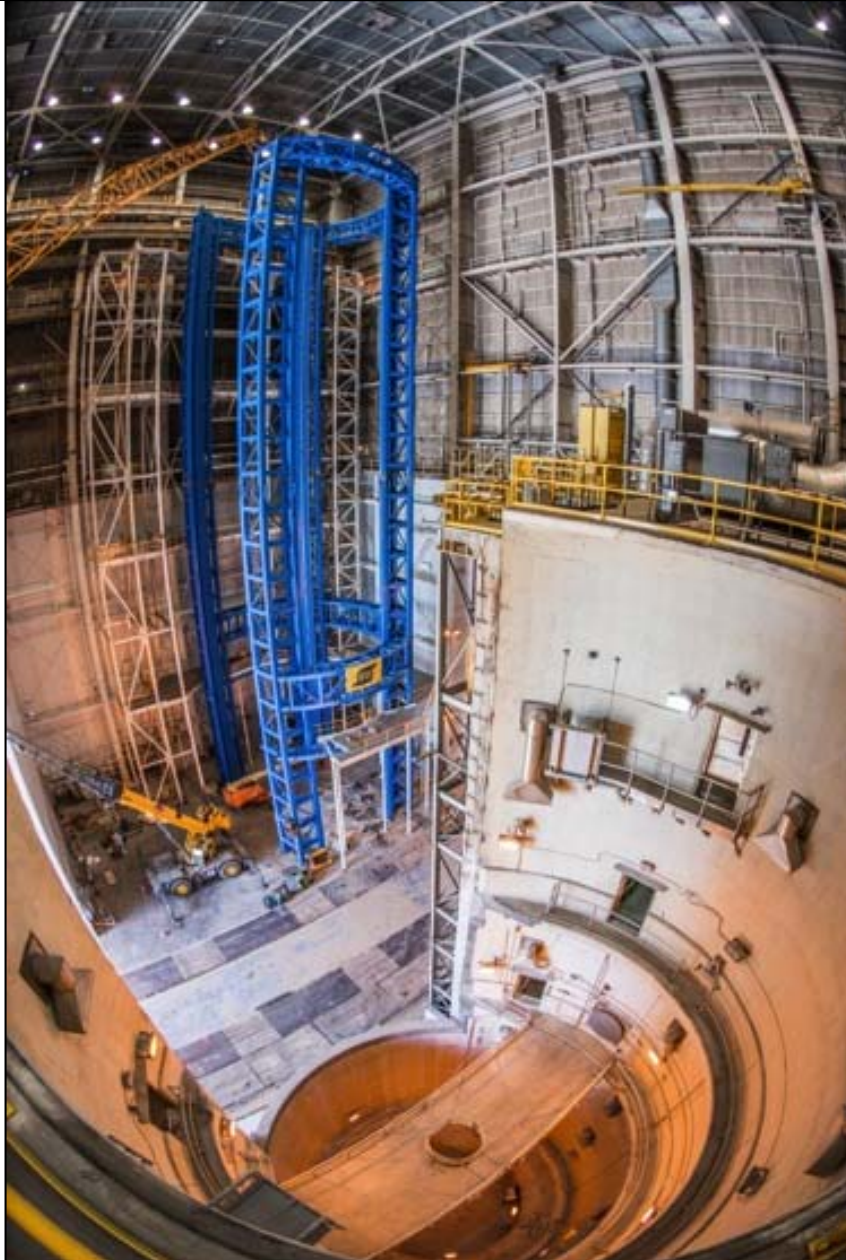
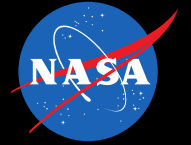
Mars Sample  
Return and  
Precursor  
Opportunities

## Human Missions Beyond Low-Earth Orbit



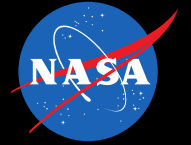


# Core Stage Development





# Engines and Boosters



# SLS Recent Accomplishments



**Launch Vehicle Stage Adapter:** Contract awarded in Feb. 2014 to Teledyne Brown Engineering.



**Avionics:** Flight software developed by Boeing tested at Armstrong using F-18 in Nov. 2013; avionics "first light" marked in Jan. 2014 at Marshall.

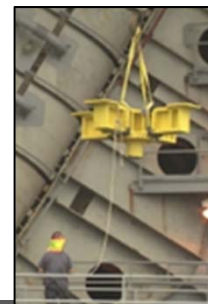
**Multi-Purpose Crew Vehicle-to-Stage Adapter:** First flight hardware delivered to ULA for Exploration Flight Test-1 in Fall 2014.



**Core Stage:** Initial confidence barrels and domes completed by Boeing; tooling installation to be completed at MAF in July 2014.



**Boosters:** Thrust Vector Control test conducted by ATK in Oct. 2013; preparations under way for first qualification motor test.

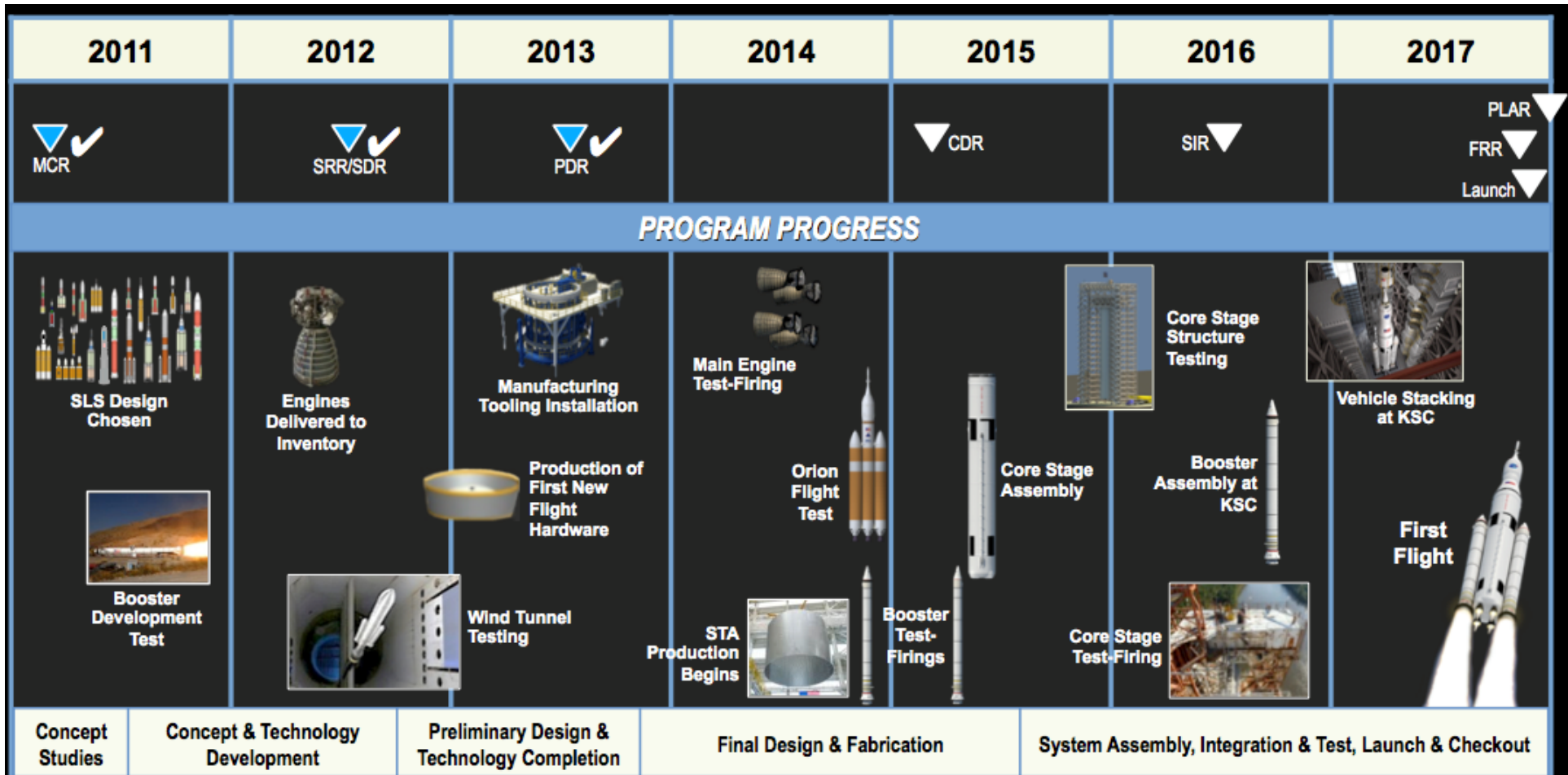


**Engines:** Thrust frame adapter fitted to Stennis A-1 stand; Aerojet-Rocketdyne RS-25 testing begins July 2014.





# SLS Development Timeline



MCR: Mission Concept Review	CDR: Critical Design Review
SRR: System Requirements Review	SIR: System Integration Review
SDR: System Definition Review	FRR: Flight Readiness Review
PDR: Preliminary Design Review	PLAR: Post-Launch Asses. Review